Electricity on the Farm

A MONTHLY MAGAZINE FOR THE UP-TO-DATE RURAL FAMILY

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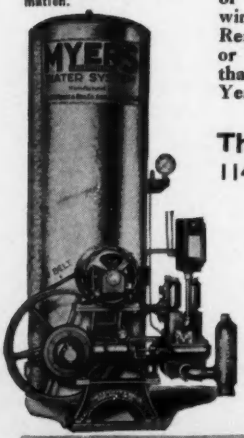

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August, 1935

Electricity on the Farm

Vol. 8, No. 8

IN THIS ISSUE

Fighting Drought with Irrigation

BY I. P. BLAUSER

Modern farmers do not wait for a severe drought before putting their irrigation systems into operation. Crops, soil and climatic conditions govern the amount of moisture required, and, whenever the rainfall does not measure up to a specified amount weekly, the difference is made up by irrigating. Truck farmers and orchardists who are employing various irrigation methods with gratifying results have told their story to the author who presents the facts on page 4.

Bringing the Water to the House

BY G. W. PRING

"Where there is a will, there is a way," has again been demonstrated by a New York farmer who was determined that the spring water on the other side of a hill some 800 feet away should be brought to his house and barn. Electricity is, of course, doing the pumping. His story as told by the author is on page 7.

Sterilizing Dairy Utensils on the Farm

BY CHAS. E. SEITZ

Sterilization of dairy utensils plays an important role in the production of high grade milk. Electrically heated sterilizers are economical and mechanically efficient for the task of reducing the bacteria count. On page 8 the author outlines the experiences of dairymen who are satisfied users of such equipment.

Kitchens You Live In

BY ADA BESSIE SWANN

The kitchen is in reality the housewife's workshop and should not be slighted when home electrification plans are made. The placement of the equipment should be carefully planned so that efficient work and an economical use of energy result. This is the aim of the author on page 9 who outlines the requirements and arrangement of a modern kitchen.

Regular Monthly Features

Electrical Housekeeping, page 13; On the Air, page 15; Questions and Answers, page 17; What's New, page 18.

EDITORIAL

Reducing the bacteria count in milk has proven a profitable move for many dairy farmers. Getting more money for the same quantity of milk from the same herd has made it worth while to exercise every precaution in order to keep the bacteria count down.

Unsterilized dairy utensils have constituted one of the most prolific sources of bacteria. It was not until efficient methods of sterilizing utensils were developed that certified raw milk was possible on the small dairy farm.

Electric sterilization of milkers, separators and milk containers represents the very latest development in destroying bacteria harmful to milk. Because of the ease of this method, neglect to sterilize properly the equipment is rare when electric service is available.

The electric method is fast, efficient and inexpensive. The apparatus needed is not costly. Thus electric sterilization represents a real step forward in the rapidly advancing science of milk control.

THE PUBLISHERS.

Issued Monthly by

CASE-SHEPPERD-MANN PUBLISHING CORP.

Editorial-Executive Offices: 24 West 40th Street, New York

KARL M. MANN, *President* — I. H. CASE, *Vice-Pres. and Gen'l Mgr.*

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CHICAGO: 6 No. Michigan Ave.—W. S. CLEVENGER, Western Manager; L. M. ROCHE, Western Representative

SAN FRANCISCO: 444 Market St., Room 305—C. H. WOOLLEY

Subscription price, 75 cents per year; single copies, 10 cents; Special Bulk Rates on Application

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FIGHTING DROUGHT with IRRIGATION

By I. P. BLAUSER

Fig. 3. (Above) The lines of porous hose may be moved readily from one row to the next by the use of the roller shown in the picture.

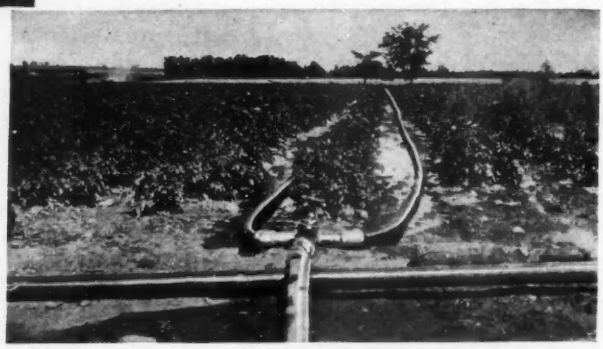


Fig. 2. (Right) A length of old fire hose supplies two 800-foot lengths of porous hose used for irrigating potatoes at Lake City, Michigan.

SINCE 1930 there have been two major and two minor droughts in the humid midwest. Naturally, in drought years fruit and vegetables growers look to irrigation for protection from the disastrous results of droughts. Many growers are wondering if these droughts are going to continue, and if an investment in irrigation equipment will pay. If we are to judge by the experiences of those who have been using irrigation we will have to say that irrigation is a good investment; it does pay, and in years of severe drought it pays big, because then irrigation makes the difference between a bumper crop and a crop failure.

It has been said that precipitation and temperature determine the productiveness of a country. Except for growing crops under cover or giving frost protection at critical periods, very little has been accomplished in off-setting the antics of the temperature. On the other hand, precipitation can be fairly readily supplemented, or even replaced en-

Fig. 1. A centrifugal pump operated by a 20 H. P. electric motor supplies water for this overhead irrigation system on the S. A. Phillips' farm at Geneva, Ohio.

tirely by irrigation, particularly if electric service is available, and the pumps can be operated with electric motors.

The average annual rainfall in Ohio is 38.44 inches; in Michigan, 31.29 inches; in Indiana, 40.17 inches; in Illinois, 37.26 inches; in Iowa, 31.48 inches; in Wisconsin, 31.63 inches, and in Missouri, 40.17 inches. The distribution of the rainfall may be just as important as the total annual rainfall, because water must be available during the growing season. The character of the rains also has an influence. A heavy, dashing rain with a high percentage of runoff, or a light rain that is not sufficient to give penetration, will not be of normal value to the crops. Thus the total annual rainfall is not always a guide for the need of irrigation. The general purpose of irrigation in the humid regions is to insure a sufficient amount of water at the time it is needed, rather than to supply the normal deficiency in annual or seasonal rainfall as is the case in the arid sections.

The amount of water that is needed depends upon the crop, the soil and the climatic conditions. It is common practice where irrigation is used to supplement the rainfall with enough water to make a total of an acre-inch of water per week. An acre-inch of water, 27,154 gallons, is the amount that is required to make a layer of water one inch deep over an acre. In some cases the water is applied weekly, at the rate of an acre-inch per week while in other instances, particularly in orchard irrigation, the water may be applied every other week, but two acre inches at each application which gives greater penetration.

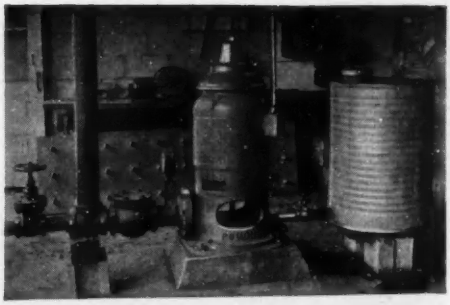
When Rainfall is Normal

Even in years of normal total rainfall because of poor distribution during the growing season, irrigation will usually increase the potato yield 100 bushels per acre, provided good cultural methods are followed. In Cass county, Michigan, in a potato demonstration last year, the unirrigated plots yielded from 50 to 40 bushels per acre, while the irrigated plots yielded from 200 to 225 bushels per acre.

Last year a southern Ohio truck gardener installed irrigation equipment consisting of a 250-gallon per minute pump and motor and 1,500 feet of used 5⅝-inch well casing, and paid for it last year out of the profits on four acres of strawberries. His neighbors, without irrigation, had almost a complete failure with their strawberries. In addition to irrigating the four acres of strawberries, this man irrigated with the same equipment 7 acres of early cabbage and 25 acres of potatoes.

Mr. C. E. Dutton, manager of the Ohio Orchard Company, states that they have been irrigating some of their trees since 1930 and have been increasing as fast as they can each year. They are now using the eyelet or sprinkler hose method shown in Figure 4. Mr. Dutton say that the irrigation has stimulated the growth and vigor of the trees, and improved the size, color, and quality of the fruit. Yields have increased from ¼ to ⅓ and the value was increased from 10 cents to 25 cents per bushel. In 1932 when accurate records were kept, the cost of irrigation varied from $11 to $15 per acre, depending upon the number of applications. By spending $11 per acre for irrigating Rome Beauty, they realized an additional profit of $67 per acre, over the non-irrigated Rome Beauty.

There are now five large orchards and a number



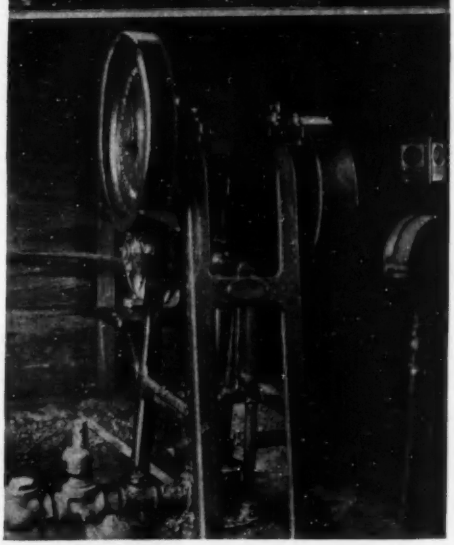


Fig. 7. (Top) A 10-H.P. motor operates this deep well turbine pump which supplies water for irrigating field and greenhouse on the Salzgaber Bros. farm. Fig. 8. (Center) Spray irrigation system in operation in a greenhouse. Fig. 5. (Bottom) This displacement type pump is operated by a 3-H. P. motor and has been in service several years.

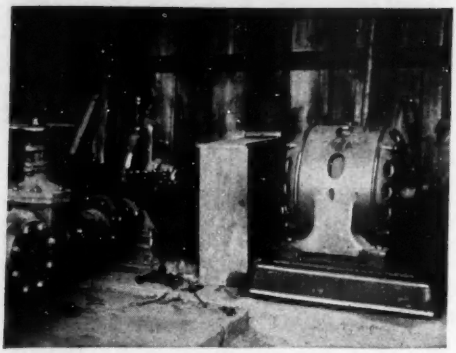


Fig. 6. This 30-H.P. electric motor and centrifugal pump supply the water for 50 acres of the Grand River Orchard. An additional 50 acres is being irrigated this year.

of smaller ones in Ohio that have complete irrigation systems. Similar developments are taking place in surrounding states.

Mr. John D. Bragg, State Agriculturist for the Ohio Welfare Department, has installed irrigation systems on a number of the State Institution farms. In every case results have been highly satisfactory. Where tomatoes were grown with irrigation, 3 to 4 acres produced as much as 10 to 12 acres that were not irrigated. At a result, where they have irrigation they are reducing the tomato acreage 50 per cent.

On another State farm, irrigated potatoes yielded 360 bushels as compared to 180 bushels per acre from unirrigated potatoes.

At the Dayton State Hospital farm in 1930, by irrigating intensively grown crops, the resulting increase paid for the entire overhead irrigation system.

There are many other specific instances that could be mentioned, giving the benefits of irrigation. All of them point out that in severe drought years irrigation is an important factor in determining whether there is a bumper crop or a crop failure, and that in normal years irrigation usually increases yield and quality.

There are two general classes of irrigated crop. those that are grown intensively, and those that are grown extensively. The amount that can be invested profitably for the two classes will be different. To justify the cost of irrigation the crops raised by irrigation must be worth more than those raised without irrigation. The increased value must, over a period of time, be large enough to cover taxes, interest on the investment, operating cost, depreciation and maintenance on the irrigation equipment. Extensively grown crops, ordinarily will not support as elaborate irrigation system as will the intensively grown crops.

Irrigation Systems of Midwest

The most common types of irrigation systems used in the midwest are spray irrigation and surface irrigation. The former method is limited almost entirely to greenhouses, intensively grown crops or special application, while the latter methods may be used for extensively grown crops as well as for the other applications.

In spray or overhead irrigation, water is applied in the form of a spray, and is applicable to all types of soils, to all conditions of ground slope, and to the utilization of small amounts of water. The chief disadvantage to its use for large areas for extensive cropping is the cost of installation, which will vary from $250 to $375 per acre and sometimes more. In surface irrigation the water is usually applied by an open furrow, porous hose, or eyelet hose. The porous hose method of surface irrigation (Fig. 2 and 3) has been receiving a great deal of attention during the last several years. The hose is about 3 inches in diameter and made of 8, 10 or 12-ounce canvas or other fabric with a tight weave. For porous hose irrigation it is necessary that the water be conveyed to the distributing hose by metal pipe or other means (old fire hose has been used) so that a pressure of 15 to 20 pounds per square inch may be maintained in it. The distribution is usually made from the high points in the field.

An adaptation of the porous hose method is the development made by Mr. C. E. Dutton of the Ohio Orchard Company, known as eyelet hose or sprinkler irrigation (Fig. 4). The eyelet hose is made of impervious canvas which has shoe eyelets inserted in the top half of the hose in a staggered position about 20 to 24 inches apart so that the water is discharged in small streams at right angles to the hose.

An adequate supply of water is necessary, and

(*Continued on page* 16)

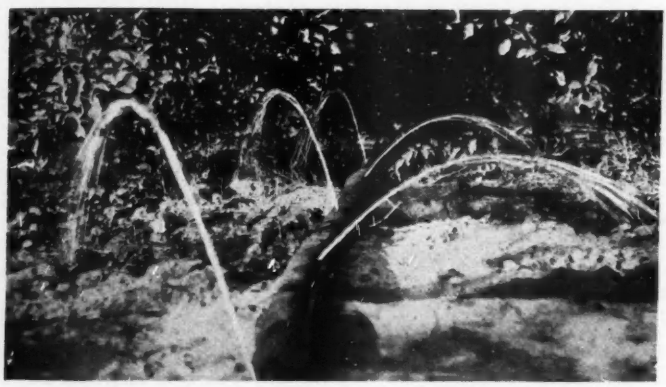
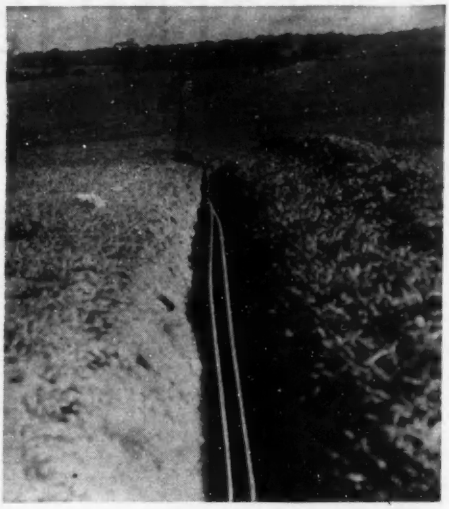


Fig. 4. Eyelet hose irrigating a row of Grimes Golden in the Ohio Orchard Company orchard during August 1934. Photograph taken by F. H. Beach of the Horticultural Department of the Ohio State University.

BRINGING THE WATER TO THE HOUSE

By G. W. PRING



Above: Cable and pipe were laid side by side in the same trench. The old windmill pump was torn down.

Right: In low spots where water might accumulate, the cable was housed in a pipe.

Below: Only a shallow ditch was needed, and the cable was easily unrolled and laid in position.

WHEN William Dunlay moved to his new farm near Manlius, N. Y., he found a fine well-spring of pure water, just what he needed for his household needs and for the large dairy barns. But the spring was all of 800 feet from the barn and the house, and on the other side of a hill.

Mr. Dunlay didn't give up the idea of having running water just where and when he wanted it. He had a ditch dug from the barn, up over the hill to the spring. A water pipe and an electric trench cable were laid in this ditch. The cable was connected at the meter in the barn and with an automatic electric pump at the spring. The pump was enclosed in a small concrete housing. replacing an old windmill.

It was one of the longest installations of underground cable for farm use in this section, but Mr. Finlay has found it efficient and economical. He has all the fresh water he needs for house, barns and milkhouse, without even the effort of pushing a button. The underground installation has eliminated poles across cultivated land, removed the possibility of interruption by high winds or ice storms. In spite of the coldest winter in half a century, the pump delivered water through the long line without a hitch.

STERILIZING DAIRY UTENSILS ON THE FARM

By CHAS. E. SEITZ

The utensil sterilizer is one of the electrical devices which enable the Chesterbrook Farms, Paoli, Pa., to produce a high grade milk. Utensils are sterilized after each milking period.

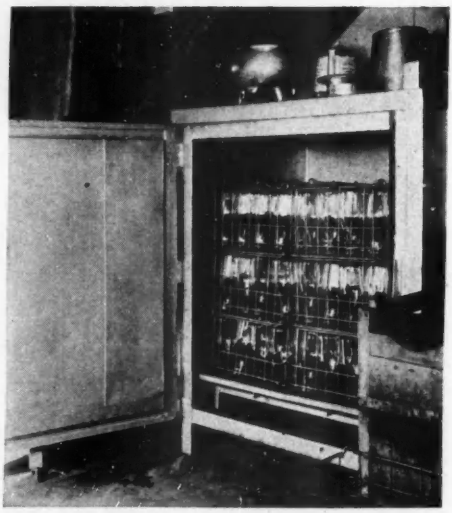
"MY combination electric water heater and sterilizer is the most satisfactory and economical method of heating water for washing and sterilizing utensils in the dairy that I have ever seen." So says W. M. Bradley of Daleville, Virginia, who has been using such an outfit for some five years, and who boasts that it is the most valuable piece of electric equipment he has in his dairy, with the possible exception of his milk cooler.

This combination electric water heater and sterilizer is ideal for retail dairies producing 50 gallons of milk per day or less, or wholesale dairies producing up to 80 gallons per day. The unit is simple, consisting of an insulated cabinet with a trough in the bottom in which is located a 5 kilowatt immersion heater. The water outlet is above the heating element so that the element is always covered with water.

The use of this heater fits perfectly into the operating routine of a small dairy, greatly reducing the amount of labor required in the wash room. Just before starting to milk, the dairyman puts into the sterilizer sufficient water for washing the utensils, and turns on the current. The wash water is hot by the time the milking is done and the milk cooled. Most of the hot water is then drawn out of the sterilizer into the washing vat and as the utensils are washed and rinsed they are packed in the sterilizer. The small amount of water remaining in the sterilizer continues to heat and gives off steam until a temperature of 200 degrees F. is reached in the cabinet. The current is then turned off either automatically by a thermostat or by hand, and the lid of the cabinet is left partly open to allow the hot utensils to dry. This provides a good clean storage space for them until they are used again.

This type of electric sterilizer has proven economical to install and operate. It greatly reduces the labor required in the small dairy and saves considerable time because the operator can do other routine jobs while the equipment is being sterilized. The cabinet occupies less than ten square feet of floor space, fitting nicely into a small wash room.

Mr. Bradley's combination heater and sterilizer was made locally from plans turnished by the Agricultural Engineering Department of Virginia (*Continued on page* 12)



This controlled humidity electric sterilizer used at Guyandotte Dairy, does a fine job in helping keep down the bacteria count of the milk.

KITCHENS YOU LIVE IN

By ADA BESSIE SWANN

DID your kitchen grow up like Topsy, with no regard of how the equipment for washing dishes, preparing food, cooking food, storing food, was selected and placed?

Or is it a kitchen where the equipment makes it necessary for you to cross and recross your steps when making baking powder biscuits or cooking the family dinner?

The kitchen is primarily a place for food preparation. When well planned and equipped it saves time and labor for the home-maker and adds to the health and comfort of the entire family and is more than likely to become a room used by every member of the family because of its efficiency, its orderliness and its attractiveness.

Proper Equipment Promotes Efficiency

Adequate Equipment Necessary for the Efficient Kitchen—The kitchen of today is made efficient through the equipment and the manner of its installation. In order that the greatest ease in the operations of the work to be done in the kitchen may be obtained, convenience outlets for using electric equipment are necessary and they should be installed at the right height and in the proper wall space for using electric equipment most conveniently.

Adequate artificial light in the kitchen so that all work centers will receive plenty of light when and where wanted should be planned. The lighting should be controlled by wall switches and should be so located that shadows and glare are avoided.

Adequate ventilation should be provided. If windows and doorways are not so located to provide cross ventilation, an electric ventilating fan of the built-in type and controlled by a wall switch is desirable.

An electric clock mounted on the wall at a height of about seven feet is recommended.

A modern electric range with an insulated oven and of the automatic type will give the greatest efficiency in the cooking center of the kitchen.

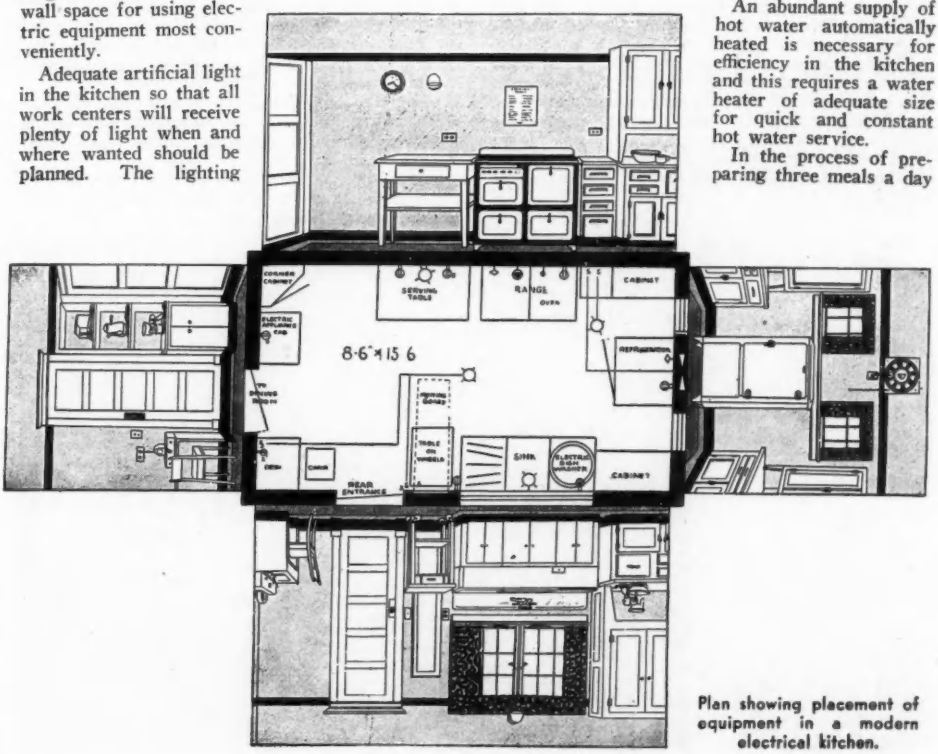
An automatic refrigerator of the size necessary to preserve food for the number of people in the family is necessary.

An electric food mixer with the various attachments is another important piece of equipment in the efficient kitchen and should be placed at a convenient outlet.

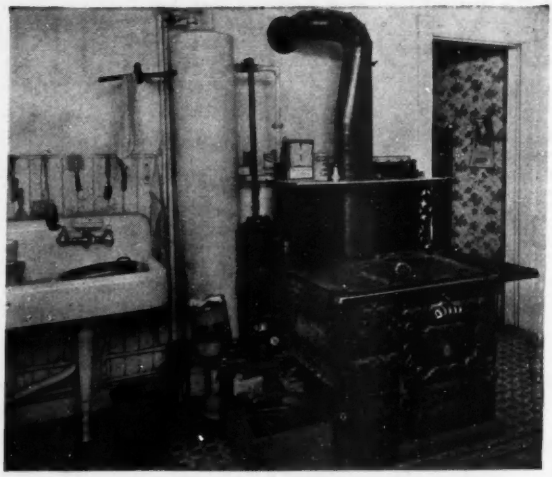
The electric dishwasher, either built into the sink or portable, is a piece of equipment that aids in efficiency and one that can be added later if not included in the first installation.

An abundant supply of hot water automatically heated is necessary for efficiency in the kitchen and this requires a water heater of adequate size for quick and constant hot water service.

In the process of preparing three meals a day



Plan showing placement of equipment in a modern electrical kitchen.



BEFORE: Besides dust and ashes, the wood box and coal bucket are companions of the old coal range, and often cause the kitchen to have a mussy appearance.

in a kitchen, whether it be a small or large kitchen, three definite work centers must be provided. These centers must be in the correct relation to each others for the most efficient work. Our recommendation is that they be grouped along three walls of the kitchen in the proper position so that the work can be carried on with a continuity of operations that will reduce steps in the kitchen and motions in the performance of the work. Our kitchens are planned so that when groceries and supplies are delivered into the kitchen, they are carried immediately to the cabinets or the refrigerator until needed.

When food preparation is to be done from this center, the foods are removed from the cabinet and refrigerator or both and at a table or at the cabinet top are prepared for cooking in the oven or chilling in the refrigerator, hence we proceed from the *food preparation center* to the *cooking center* with the range as the center of this unit.

From the cooking center we proceed to the *serving center* and with the aid of a serving table on wheels send the prepared food to the dining room. This procedure of work enables us to carry on continuous operations with the least number of steps and motions in the performance of food preparation and serving which is the principal work performed in a kitchen.

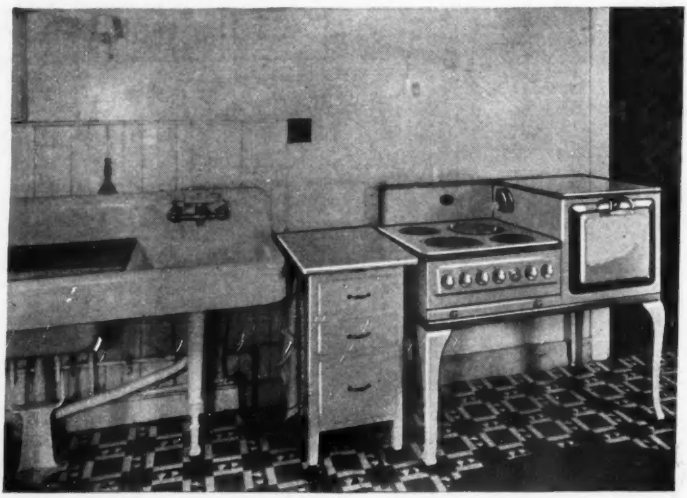
Description of Work Centers

These work centers are first, the *food preparation center.* The sink forms the base for this center with the refrigerator and cabinet nearby. At the sink keep all utensils for washing and preparing fruits and vegetables with utensils used in cooking such as the pots for cooking vegetables, frying pans, etc. In the cabinet keep staple groceries, such as flour, sugar, spices, etc.

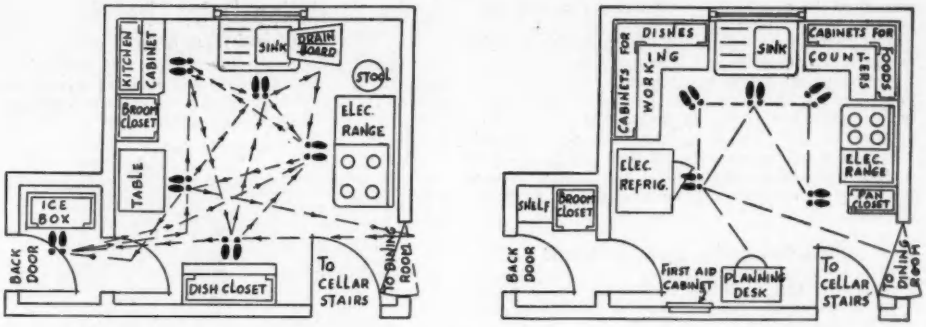
Group two: *the cooking center.* The base of this center is the range. It should be near the cabinet or work table where foods are prepared and not too far from the entrance to the dining room. A serving table on wheels near this unit simplifies the work of carrying foods and dishes to the dining room.

Near the range keep all utensils that must be heated before food is placed in them, such as frying pans, etc., also salt, pepper, forks and spoons used in dishing up food.

Group three: *the serving center.* The serving table is the base for this center and a table on wheels near the china closet and close to the range



AFTER: With an electric range where the coal stove stood, the appearance of the kitchen of Mrs. Alfred Behret, Poughkeepsie, N. Y., is entirely changed. Furthermore, the newly-gained cleanliness can be maintained, where sootless electric heat is used.



Left: Miles of foot-steps are required daily in this kitchen where equipment is carelessly placed. Right: Compact and convenient is the kitchen planned for efficiency and ease in the preparation of foods.

makes this center more convenient. At this center are kept table china, glassware and silver (unless adequate space is provided for silverware and glassware in the pantry or dining room). The bread box, cake box and containers for crackers, etc., should be kept in this center to simplify the process of serving the meal.

A table top or a table with an under shelf on wheels is most convenient for carrying foods, dishes, etc., from one point to another in the kitchen or into the dining room or onto the porch.

It is suggested that the table top and under shelf be built with a molding around the edge of each so that when table is pushed from kitchen to dining room, dishes will not slip from the table.

Cabinet for Cooking Appliances

Whenever space permits, a closet or cabinet with shelves for storing electric cooking appliances such as the electric percolator, toaster, waffle iron and grill, is recommended. Convenience outlets from which these appliances may be used should be placed as close to the cabinet or table where appliances are to be used as possible.

In a small kitchen, the door of this closet for storing electric appliances should be so constructed that when it was opened it would drop into place as a counter or table top on which the electric appliance would stand while in use. Such a cabinet provides storage for these appliances when not in use and provides space and outlets for using them without moving them from one place to another in the kitchen.

Shelves in the lower part of the cabinet may be used to store dishes and supplies most frequently needed when these electric appliances are to be used.

In kitchens where space does not permit the placing of such a cabinet, it is most important that outlets for using the electric equipment as described be placed above a table in the back wall of the cabinet or at the side of the cabinet.

Hot Water System

It is most important in the performance of every day kitchen work that an ever-ready supply of hot water be available. Hot water is used more constantly each day in the kitchen than any other modern convenience and while it is not recommended that a water heater be installed in the kitchen (unless the new all-metal built-to-order kitchen unit which contains the range, sink, refrigerator, cabinets and water heater is used) it is recommended that an adequate size (depending on family) automatic water heater be installed in the basement of the home to furnish water wherever and whenever needed throughout the house.

Sinks of enamelled iron, china or metal are obtainable from reliable concerns.

There are sinks with single and double drainboards and without drainboards in standard sizes,

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also sinks to fit in right and left corner and full recess.

The enamelled or china sink is obtainable in acid resisting finish and in a color range.

Counters or other equipment at the sides of enamelled or porcelain sinks should be kept three inches away from edge of sink because it is impossible to work a tight joint with a roll rim and consequently it is preferable to leave room to clean around sink sides. With metal a tighter joint can be obtained, consequently equipment can fit more closely.

Counters and Storage Cabinets

Counters (or working surfaces) are built to form a continuous work surface according to plan and available space.

Storage cabinets of wood or metal include base cabinets under working counter usually 21 inches deep and 35 inches high. Wall cabinets hung approximately 15 inches above counter. Usually 12 inches deep by 34 inches high. (This brings the top of the wall cabinet 7 feet from the floor which is highest point for convenient reaching.) Where advisable to gain storage space, wall cabinets go to ceiling. These base and wall cabinets are used above and below the continuous working counter.

Broom, pan, and storage closets. These closets not broken for counter space. Good to use at the ends of a cabinet setup as they make a balanced arrangement and do not interfere with the continuous counter. The width of these cabinets varies.

Rural Service Men Go to College

Rural service men of the Pennsylvania Electric Association held a two-day conference on May 22-23 at the Pennsylvania State College.

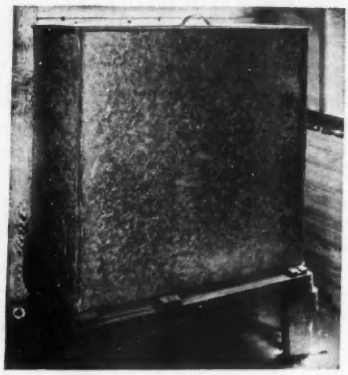
Problems in connection with rural electric service were discussed and experiences were exchanged.

The Conference was highly successful, and it was agreed by all that annual meetings of this sort will aid materially in improving rural electric service. The group photo reproduced herewith shows the rural service men who participated in the Conference.

Sterilizing Dairy Utensils

(*Continued from page* 8)

Polytechnic Institute. It cost approximately sixty dollars. For nearly five years this has given excellent results, and its use of current has averaged less than 185 kwhrs. per month for entire job

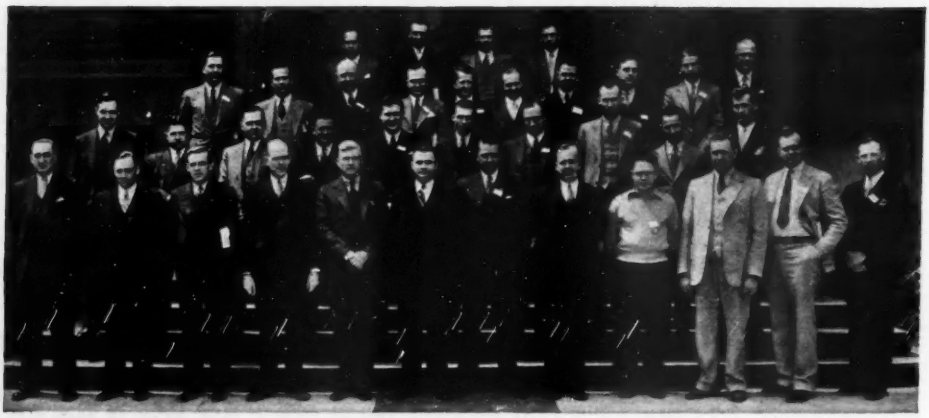


This sterilizer has a 2-kilowatt heating unit and will hold from 7 to 11 gallons of water for each operation.

of heating wash water and sterilizing the utensils.

Another type of sterilizer was installed at the Guyandotte Dairy near Mullens, West Virginia by the local power company and has been in constant and satisfactory operation for some twenty months. This sterilizer consists of an insulated cabinet which is heated with ten 500 watt electric strip heaters. A thermostat controls the temperature and the sterilizer requires no attention after it has been loaded with utensils. Approximately 2½ kwh. of electricity are consumed for each sterilization which is accomplished by maintaining a temperature above 180 degrees F. for a minimum period of 20 minutes. The engineers of the local

(*Continued on page* 18)



Rural service men at conference of Pennsylvania Electric Association at State College, Pa., May 22-23, 1935.

ELECTRICAL HOUSEKEEPING

Conducted by GAIL MEREDITH

KEEPING IT COLD

Cold meat, a cold tomato on crispy lettuce, together with a hot dish of carrots and peas.

KEEPING it cold is one very effective way of making food taste better this kind of weather. Milk, ice cold from the shelves of the refrigerator, fruit juices, chilled and sweetened, then diluted to appetizing drinks, tomato soup served in little glasses with ice cubes tinkling against the sides, all these are guaranteed to perk up the family's interest in meal time.

At the spring field day on the campus of one of our mid-west colleges, a pleasant young co-ed called Hazel Schultz showed me how to make a chocolate paste that will keep for some time in the refrigerator and that can be used to make chocolate milk for the children when they get just a little bit tired of drinking their milk plain.

"It is quite easy to do," she said, "just take ½ lb. cake of bitter chocolate, and melt it in the top of a double boiler. Stir in from 1¼ to 1½ cups of sugar. While you are stirring, add 1 cup of hot water, about a quarter at a time. Heat this for fifteen minutes. You can keep it in a fruit jar in your refrigerator. If you want it for a chocolate sauce, you can add whipped cream to it while the paste is still soft.

"A teaspoon of the paste added to a cup of milk will make a pleasing drink. Next fall when the weather gets cold again, you can use this for hot chocolate, too. All you have to do is add it, a teaspoon or a tablespoon, as you like it, to a cup of hot milk. It makes awfully good chocolate."

Another way of smuggling a little more milk into your meals is in cream soups. Often a soup can be the only hot dish at a very satisfactory and filling cold dinner. Making the soup will be a quick job if you are keeping a double supply of white sauce or meat stock cold in the refrigerator. You can combine these with a spinach puree, with cooked corn, with a can of tomatoes, or a couple of cups of left over peas.

If you still have a few cans of tomato juice on the shelves in your fruit cellar, you may like to try this frosty tomato soup as a cool start for a hot dinner.

Frosty Tomato Soup

2 cups tomato juice
⅔ cup whole milk
⅛ tsp. onion juice
½ tsp. celery salt
1 tsp. salt
1 tsp. sugar
Dash each of pepper and clove

Add the seasoning to the tomato juice and allow to stand for about an hour. Pour the milk into a quart jar. Add the seasoned tomato juice and four ice cubes. Cover the jar closely and shake well. Serve in small glass with cracked ice cubes.

Any raw vegetables taste better if they are served crisp and cold. Vegetables left over from dinner

Vegetables are kept crisp and fresh.

THIS ELECTRIC PUMP HAS ONLY ONE MOVING PART!

NO NO NO NO

WESTCO—world's simplest electric pump has only ONE moving part. And, it operates *without metal - to - metal contact.* Nothing to wear and get out of order.

To ground floor or basement faucets, Westco pumps 38% more water than its rated capacity *without using extra electric current.* 28 ft. suction lift. Bronze Liners assure lifetime service from pump casings. Rust-proof throughout. Quiet. Cheap to operate. Thousands of satisfied users. Sold on MONEY-BACK GUARANTEE.

Fill in coupon below and mail today for FREE colorful Catalog. WESTCO PUMP CORP., Davenport, Iowa. Branches coast to coast.

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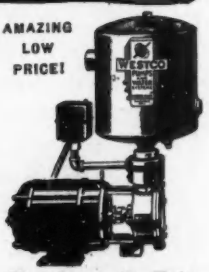

275 Gals. per hr. Westco. Others up to 3000 Gals. per hr. Larger tanks available.

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COUPON BRINGS CATALOG

WESTCO PUMP CORPORATION, Davenport, Iowa. Dept. E-8.

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Name .....

St. or R.R. No. .....

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Fruit tastes better cold.

will keep their texture and flavor in a refrigerator and can be used again so successfully that many women plan to have left overs by cooking enough for two or three meals at one time.

Cool salads from these vegetables are quite as popular as hot soups.

Beet Salad

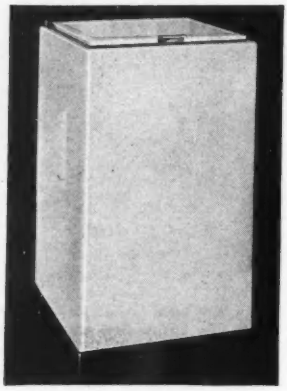
6 medium sized young beets
1 tbsp. sugar
½ tsp. salt
1 tbsp. gelatine
1 tsp. vinegar
1 tbsp. lemon juice
pepper if you like

Clean beets thoroughly and boil till tender in water to cover, then drain, saving the liquid. Add enough water to make two cups. Peel and chop the beets. To the hot beet juice add the gelatine softened in two tablespoons of cold water, the sugar, vinegar, and seasoning. Cool till it begins to thicken, then pour over the chopped beets. Chill until firm. Cut in cubes and serve on lettuce with mayonnaise.

Golden Carrot Salad

4 medium carrots grated
1 small can crushed pineapple
1 cup pineapple juice
1 cup boiling water
1 package lemon flavored gelatine

Dissolve gelatine in hot water and cool. Mix with pineapple juice, pineapple and carrots. Pour into individual molds or one large mold. Chill, serve on a bed of lettuce.



For small families.

Both of these salads like any other jellied or frozen salad, can be made at your convenience and served any time. There is much of your cooking that can be handled that way if you plan for it, and store the food in tightly covered dishes in your refrigerator.

Cookies and rolls, the dry mixture for biscuits and pastry, pastry ready to roll, custards, and syrups for cooling drinks, all of them can be kept for days ready to whisk into the oven or onto the table as they are.

So keeping it cold makes getting meals easier, much easier for the cook, while it makes them taste better to the cook's family.

If you like it cold.

ESCO Utility Coolers

for general farm use

Model L-14 ESCO Utility Cooler. Note clean-cut, trim appearance. Ice making compartment shown at left.

Provide cold, dry storage, *electrically*, for almost every farm need—and a supply of ice —25 lbs. a day (three 8½ lb. cakes).

Can be used for vegetables, meats, eggs, butter, small quantities of milk and other perishables, as well as left-overs from the table.

Just the thing for general farm use. There are 3 sizes of Model "L" ESCO Utility Coolers.

Drop a card today for free booklet.

ESCO Cabinet Company

414 E. Biddle Street, West Chester, Penna.

Manufacturers of ESCO Milk Coolers

ON THE AIR

Conducted by JEROME J. HENRY

Everett Mitchell Now Chief Announcer

EVERETT MITCHELL, familiar to country folk as the Farm and Home Hour announcer, has been appointed chief announcer in the Chicago studios of the National Broadcasting Company. He has been associated with radio since 1923.

• • •

Chaos Comes to an End at Last

THE Arlene Francis chaos in 1935 has finally come to an end. Straws had to be drawn to end the difficulty.

For the past few weeks there have been two Arlene Francises in radio. One has been on the Bea Lillie show, and the other, also a comedienne, just arrived in New York from the West Coast with Al Pearce and his gang who are heard on the NBC chain daily except Friday and Saturday.

The West Coast Arlene noticed the mess first.

She had dinner invitations from strangers, bills from stores she's never shopped in, compliments on programs she didn't give.

And at the very same time a brunette Arlene was also muttering under her breath. All her letters lately were coming marked, "Opened by Mistake." She was continually being asked about a man named Al Pearce, although she'd never heard of him.

Then one day in the studio corridors someone called, "Arlene Francis." From two different studio doorways voices called, "Here I am." The owners of the voices looked at each other.

"You Arlene Francis?" both of them asked.

Someone stepped forward and introduced them and immediately they settled down into a meeting of the Ways and Means Committee. The only ways and means of keeping their affairs separate, they decided, was for one of them to change her name.

Both names were longstanding; both were named after their mothers!; so the only fair way to decide seemed to be by lot.

Arlene from the West drew the short straw which marked her the loser. Now she's Arlene Harris and life is going on a lot more smoothly for the Arlenes.

• • •

Porters Can Face the Mike

THE dreary business of being a porter is a studied art around the CBS studios. It is practiced by a score of inconspicuous heroes, the smallest part of whose job is to push a broom. They can tackle a program production problem as artfully as they can assuage an artistic temperament; and they can face a microphone unflinchingly if necessary.

They have the details of every program at their fingertips. They know how the production man wants the studio arranged for each one. They know precisely where each orchestra leader wants his musicians placed. When orchestra and artists enter the studio everything is in its place.

This is the situation ordinarily. But emergencies will happen. Then the porters must, as they call it, step. Once when the broadcasting facilities failed in the studio where an important program was to be presented the porters moved the whole program, orchestra equipment, visitors' accommodations, sound effects and all to an adjoining studio in less than three minutes which remained until the time for the broadcast.

On another occasion 25 musicians and 75 visitors were moved to another studio in about five minutes.

The porters report that Howard Barlow will not conduct from a conductor's stand. They vote Freddie Rich's orchestra the easiest to set up and Johnny Green's the most intricate. Bing Crosby seems to be their favorite artist.

Among the porters is some real talent. George Baker sings, in fact he sings so much like Singin' Sam that his colleagues call him by that name now.

Their vote for the most temperamental artist goes to a lady who refused to go up or down stairs except alone. If someone else came on the steps after she had started she would back up, or down, again. The porters kept a respectful distance and saw that others conformed as well.

• • •

Special Farm Programs on Air This Month

TWO special programs of widespread interest have been scheduled for the National Farm and Home Hour this month. They are a special broadcast of the Dairy Day meeting from Geneva, N. Y., on August 21, and the International Boy Scout Jamboree from Washington, D. C., August 31.

In the Conservation programs of the Farm and Home Hour, broadcast every Friday, speakers will

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ELECTRIC ONE WIRE FENCE

Now you can use the world's cheapest, most effective livestock fence. This Prime Controller, plugged into 110 a.c. or 32 d.c. light socket gives barb wire a harmless kick. Livestock won't go over or under it. Four years' experience proves it.

Proved Absolutely SAFE

Don't try to use electric fence unless you use the PRIME CONTROLLER. It is the one, proved absolutely safe way to electrify fence. One controller operates 4 miles of Electric Fence for 10c per month. Positively harmless—stings stock, gets their "goat," but cannot hurt them. This means you can have all the fence you want at 4c per rod. Easy to put up—fence in part of a field or pasture for hogging down corn, rotating pasture, etc. Saves cost on first field you fence.

SAVE 10 TIMES Its Cost In One Year

Save wire. Save posts, use stakes. No gates, use snap. 30 days' trial at our risk—satisfaction guaranteed or money back. Write

THE PRIME MFG. CO.
1743 So. First St., Milwaukee, Wis.

40 PAGE BOOK VALUABLE FACTS ABOUT PRIME ELECTRIC FENCE

MAILED FREE

WRITE TODAY

Bernice Claire, popular radio soprano, who has been making a steady climb up the ladder to radio fame. Bernice is a sports enthusiast and takes a daily swim.

continue their discussions of the land development program. Other speakers in this series will give timely talks on outdoor sports and the recreational advantages offered by the Nation's natural resources which the Federal Government is seeking to protect and improve.

Fighting Drought with Irrigation

(*Continued from page 6*)

the common sources are lakes, ponds, rivers, small streams, and wells. Local conditions will determine the source of supply.

In most cases the water will have to be pumped, and that requires the selection of a pump and a source of power. Electricity furnishes an ideal source of power wherever it is available and conditions permit its use. The electric motor is compact, readily adapted to most any kind of pump, easily started and stopped and requires a minimum of attention.

The selection of a pump for irrigation should be given careful consideration, in order that satisfactory results are secured. The two types of pumps that are most generally used are displacement pumps and centrifugal pumps.

The displacement or piston type pumps are built for either shallow wells or deep wells. The shallow well pump cannot be used when the water level is more than 20 to 22 feet below the pump. Deep well (Fig. 5) pumps may be used for any depth, but are usually used only where shallow well pumps cannot be used. Since the displacement pump is positive in action, it is capable of producing high pressures, and therefore must be fitted with a relief valve to prevent damage to the pump or piping in case excessive pressures are produced. The piston type of pump has a wide range of working conditions, but does not have the capacity to deliver large quantities of water except by using heavy and expensive pumps.

When to Use a Centrifugal Pump

Centrifugal pumps (Fig. 6) are generally used where large quantities of water are needed. They have the advantages of low cost, simple construction, light weight, lack of valves, ease of repair and maintenance, and high efficiences when working under the conditions for which they were designed. A centrifugal pump has a high efficiency for a narrow range of conditions, therefore, a pump must be chosen to meet specific operating conditions. The maximum practical suction lift of a centrifugal pump is about 15 feet. The total lift of centrifugal pump may be increased by increasing the speed, or by using more stages, or by both.

The deep-well turbine (Fig. 7) is a special type of centrifugal pump, and is used where the ordinary horizontal or vertical centrifugal cannot be used. It is so constructed that it can be let down to any depth in a casing of suitable size. The greater the depth to the water the greater the number of stages that must be used.

The type of irrigation system to select is going to be determined very largely by the value of crops and the method of growing them, by the soil type and contour of the land, and by the water supply.

Whatever system is used the water should not be applied any faster than it will be taken up by the soil.

A great deal of valuable information regarding the different irrigation systems, their installation, and operation, can be obtained from the following bulletins on irrigation: U. S. D. A. Farmers Bulletin No. 1529, "Spray Irrigation in the Eastern States"; U. S. D. A. Farmers Bulletin No. 1635, "Surface Irrigation in the Eastern States"; and Michigan State College Extension Bulletin No. 133, "Porous Hose Irrigation."

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If Your Electric Range Is Slow Cooking
modernize it with a set of these high-speed, flat-top, power-saving range units. Ask your Power Company for details—or write us.
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ASK YOUR POWER COMPANY for a FREE TRIAL

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EVERITE
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Everite Pumps are more simply and strongly constructed. They are built to serve a definite pumping requirement—not to meet a price. Still they cost no more than ordinary pumps.
See your nearest Everite dealer or write direct to the factory and we'll furnish complete information without obligation.
EVERITE PUMP & MFG. COMPANY
Lancaster, Pa.

Questions and Answers

Conducted by H. J. GALLAGHER

Question: *On page* 18 *of the August* 1934 *issue of* ELECTRICITY ON THE FARM *is a photograph of a 2 hp. motor that replaced a 5 hp. gas engine on the farm of William Matthies, Bloomingdale, Illinois. I know of other instances where ¼ hp. electric motors have replaced 1½ hp. gas engines for pumping water. What is the difference in power output between an electric motor and a gas engine of the same size?*

Answer: There is a rather universal idea that an electric horsepower is considerably larger than a gasoline horsepower when in reality they are exactly the same. The general practice of replacing gas engines with electric motors of less horsepower rating for all kinds of work has resulted in too large a number of good motors being burned out by carrying too great an overload.

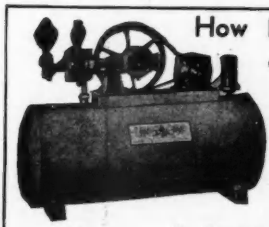
A gas engine and an electric motor both rated at 1 hp. are each designed for a continuous power output of 1 hp. During operation if the load should materially increase beyond 1 hp. the gas engine would stop, but the electric motor would draw additional energy from the supply line and develop a momentary overload in many cases as high as 3 hp. Should the overload continue too long the motor would overheat and burn out.

A farm job that would require 1 hp. for operation, but 2 hp. to start, could be operated by a 1 hp. electric motor, but would require a 2 hp. gas engine. The single phase electric motor of the repulsion induction type has the ability to start under a 200-300 per cent overload.

Referring to the installation on the farm of William Matthies. The pump has a capacity of 15 gallons per minute. The power required to pump water at 15 gallons a minute with a pump 50 per cent efficient against a total head of 100 feet is only .75 hp.; or 1.12 hp. against a 150 foot head. Obviously the 5 hp. gas engine was entirely too big for the job which could be done by a smaller engine or motor.

It is much easier to adapt the correct size electric motor to the job than it is the gas engine as electric motors have such a wide range in

(*Continued on page* 18)



How Many Gallons of Water Do You Need?

If you will write us and give us depth of your well and approximately how many gallons of water you require daily, we will tell you how much it will cost you to install a Uniflow Water System. You know all about the advantages of running water, but do you know that it is easy and inexpensive to get a guaranteed Uniflow Water System? Why not write us today . . . a postcard will do.

MILK COOLERS

Send for Bulletin describing Uniflow line of electric refrigerated milk coolers.

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● ***With complete information you will find it easier to select the equipment that best suits your needs. Check over the list below to determine what appliances might best serve to improve operations on your farm.***

● ***If our advertisers cannot give you all data and information you require, just fill out and mail us the handy coupon at the bottom of the page.***

FOR THE HOUSEHOLD

Ranges—Refrigerators (*see advt., pages* 14-17)—Clothes Washers—Vacuum Cleaners—Ironing Machines—Dishwashers—Flat Irons—Food Preparing Machines—Ice Cream Freezers—Sewing Machines—Table Cooking Appliances—Clocks—Range Replacement Units (*see advt., page* 16)—Floor Polishers—Electric Tea Kettles.

FOR WATER SUPPLY

Automatic Water Systems (*see advt., Inside Front Cover, pages* 11, 13, 16 *and* 17)—Water Heaters (*see advt., page* 14)—Controls—Septic Tanks (*see advt., page* 17).

FOR THE DAIRY

Milking Machines—Milk Coolers (*see advt., pages* 14-17)—Cream Separators—Churns—Bottle Washers—Dairy Sterilizers (*see advt., page* 14)—Clipping and Grooming Machines.

FOR POULTRY

Incubators—Brooders—Time Switches—Drinking Fountain Warmers—Ultraviolet Light—Thermostats.

FOR REPAIR AND MAINTENANCE

Soldering Irons—Tool Grinders—Drills—Paint Sprayers—Woodworking Machinery—Motors.

MISCELLANEOUS

Feed Grinders—Ensilage Cutters—Corn Shellers—Hay Hoists—Feed Mixers—Stationary Spray Plants (*see advt., Inside Front Cover*)—Burglar Alarms—Ventilators—Soil Heating Equipment—Insect Traps and Screens—Electric Fencing Units (*see advt., page* 15)—Radio Sets—Sheep Shearing—Light for Stimulating Plant Growth—Floodlights—Bunch Tyer—Vegetable Washer—Motors—Electric Lawn Mowers.

—FREE INFORMATION COUPON—

Electricity on the Farm
24 W. 40th St., New York

Without cost to me, please have manufacturers send complete information on the following Electrically Operated Equipment which I am thinking of buying. .....

My name is .....

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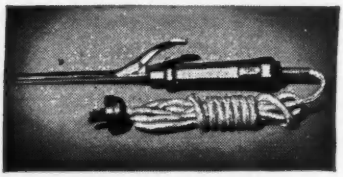
What's New

Reviewed by T. E. HIENTON

Names and addresses of manufacturers of the articles described in this column will gladly be furnished upon request. Address your requests to What's New Department, ELECTRICITY ON THE FARM, *24 West 40th Street, New York, N. Y.*

Electric Curling Iron

Permanent waves and finger waves are now as common on the heads of farm housewives and their daughters as on those of their city relatives. The electric curling iron has found its place,



along with other household electrical equipment originally designed for city households, in the farm household.

A swivel cord curling iron announced by an eastern manufacturer is a recent development of interest to all women. The curler cords turns on a rotating swivel inside the handle where it does not impede the use of the iron. panel shaped handle has a glowing opalescent finish, to which is attached a 6-foot cord covered with rayon silk. The iron is equipped with an automatic heating control device to keep the iron at an even temperature and to prevent burning of hair.

Electric Waffle Iron

Waffles and bacon or waffles and sausage help to make up a breakfast substantial enough for the hardest working farmer or member of his family. Electric waffle irons do not heat up the house nor the housewife to bake them as does the frying of hot griddle cakes.

A new development in electric waffle irons is announced by an eastern manufacturer. This iron indicates by a tiny red light when the iron is hot enough for the particular finish desired on the waffle, light, medium or dark brown for it lights when the circuit is closed and goes out when the iron has reached the desired temperature. It lights again when the batter is poured in and again goes out when the baking is completed. When the lid is raised, an attachment lifts the waffle from the grid. Finish of the iron is chromium with an ebony enamel inlay.

Questions and Answers

(*Continued from page* 17)

sizes, especially the fractional horsepower motors.

One and one-half horsepower gas engines are generally used to pump water because they are about the smallest gas engine designed for that operation. The actual power required may be only ¼ hp., consequently the ¼ electric motor could replace the larger gas engine.

For successful motor operation it is essential that the actual amount of power required is determined before the motor is purchased.

Sterilizing Dairy Utensils

(*Continued from page* 12)

power company built this outfit at a cost of approximately $60.00 exclusive of labor. In careful tests the bacteria count was lowered from 595,000 to below 5,000 and held within this limit.

Mrs. Laverne Biggart, operator of the Guyandotte Dairy, attributes the success of her 30 cow dairy to electricity and the labor saving equipment it operates. Her home is completely electrified and electricity is used in the dairy for refrigeration, bottle washing, heating water, pumping water, clipping and lights. In commenting on it Mrs. Biggart says, "Before the power line was put in I spent $35.00 in fifteen days for ice and then lost considerable milk. With electric refrigeration I do not worry about losing any at all, and my total monthly electric bill is not half what the ice cost.

"I do not think there is any better sterilizer to be had than the electric one we have. Our bottles are always dry, we have no odor from chemicals and we know that the bacteria is killed. It would be impossible to operate our dairy successfully without the use of electricity."

The experience of dairymen as well as laboratory investigations by a number of experiment stations have demonstrated that electrically heated sterilizers are economical and mechanically efficient in sterilizing dairy utensils on the farm. Such equipment meets the requirements of the Departments of Health in some states while other states have not yet recognized nor provided in their ordinances for this type of sterilization. The electric method, however, will do the job effectively and has so many advantages that electric sterilizers will no doubt soon be recognized by all state ordinances.

COVER TITLE CONTEST

JUNE COVER

$20 First Prize for June Cover

"Light is the task, light is the cake,
When electrically they mix and bake."

MRS. ARNOLD RENNIE,
R.F.D. 1, Blackstone, Mass.

Nine $2.00 Prizes for June

"Happy partners, we three,
Mother, electricity and me."
MRS. MARION I. ANDREWS, Hopkinton, Mass.

"In this modern kitchen mother mixes things up and baby does the whipping."
MR. RAY LEONARD, R.F.D. 1, Avon, Ohio.

"Electricity—it beats everything."
HARRIET WHITE, R.F.D. 1, Box 420, Medford, Ore.

"Our little lady with electrical appliances,
Soon will master the household sciences."
F. M. P. INGRAHAM, R.F.D. 4, Windsor, Vt.

"The magic mixer makes the midget maid a 'master' aid to mother."
MRS. E. R. ALLEN, R.F.D. 2, Williamsfield, Ohio.

"This beater works without a hitch,
Just plug it in and turn the switch."
ROBERT UMBLE, Star Route, Honey Brook, Pa.

"Beating the batter the better way."
DOROTHY RUGH, R.F.D. 5, Greensburg, Pa.

"Electrically speaking, a Miss is as good as a Mrs."
MRS. L. S. BUSHNELL, R.F.D. 6, Clinton, Mo.

"'Little Miss Fix-It' uses electricity to mix it."
FLORENCE LEVERENTZ, Route 1, Crystal Lake, Ill.

RULES
August Title Contest

Ten cash prizes will be awarded for the 10 best titles for the picture on the front cover of this magazine.

The first prize will be $20 cash, and nine second prizes of $2 in cash will be awarded.

In case of a tie, each winning contestant will receive the full cash prize to which he or she is entitled.

Titles should be brief—the shorter the better — and short slogans will be given preferences over rhymes.

All members of the farm family to whom this magazine was sent may submit titles, but each contestant may submit only one title.

Question "A" must be answered.

Entries must be sent to the Title Editor, ELECTRICITY ON THE FARM, 6 North Michigan Avenue, Chicago, Illinois, before September 1st.

Winning names and titles will be announced in the October issue.

Send your title on the coupon or make out a similar form on a plain sheet of paper or government postcard.

My title for the Front Cover picture on ELECTRICITY ON THE FARM for August is

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(a) What farm chores or housekeeping jobs would you like our editors to write about in greater detail for future issues? .....

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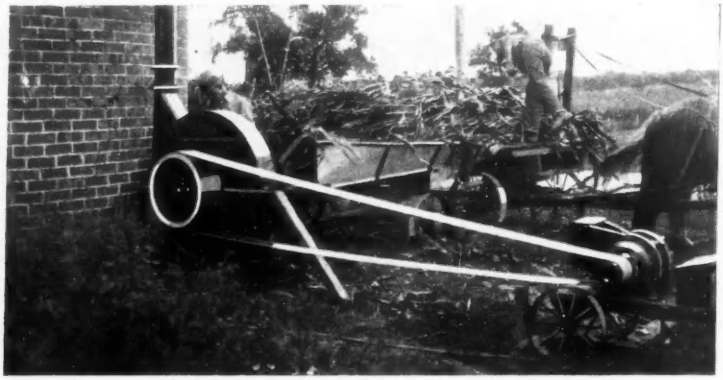

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